UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
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Date: June 15, 2009

Subject: **POLREP #1 – Initial and Final POLREP**
Libby Asbestos NPL Site (Flower, Granite, & Callahan Creeks) Lincoln County, MT.

To: EPA Headquarters
John Irizarry

From: Duc Nguyen, OSC
8PAER-ER

ABSTRACT

Site #:	BC	Response Authority:	CERCLA
NPL Status:	NPL	Incident Category:	Fund-Lead
Reporting Period:	08/30/2006 – 07/02/2009	Response Type:	Time-Critical
Action Memo. Date:	August 12, 2008	Removal Start Date:	April 9, 2008
Removal Mob. Date:	August 15, 2008	Removal Compl. Date:	June 15, 2009

I. SITE INFORMATION

A. Incident Category

Time Critical – Fund Lead

B. Site Description

The Overall Libby Site: The Libby Asbestos NPL Site ("Site") consists of seven operable units (OUs). OU4 comprises the residential, public, and commercial properties found in and around the town of Libby which are contaminated with Libby Amphibole asbestos (LA). OU7 includes the town of Troy, Montana, and the area immediately surrounding Troy. Troy, with a population of approximately 957, is located 15 miles west of Libby. The remaining Site OUs are areas which are/were impacted by the mining, processing and transportation of LA in Lincoln County.

The creeks: Headwaters of Flower, Granite, & Callahan Creeks originate within the Cabinet Mountain Wilderness Area and discharge to the Kootenai River. In the winter of 1995-96, southern Lincoln County experienced flooding in almost all of its creeks. In response, Lincoln County and the US Army Corps of Engineers (USACE) undertook flood control and stream bed stabilization efforts in the Spring/Summer of 1996. Repair work was performed on at least five creeks: Libby, Granite, Flower, Parmenter, and

Callahan Creeks. Records indicate that one of the three sources of riprap used for stream bed stabilization was a quarry operated by the Kootenai Development Corporation (KDC) at the Zonolite Mine, near Libby. That particular quarry area contained intrusive LA veins.

1. Site Location

Flower Creek, centrally located in Libby, discharges runoff from local forest, rural, and urban areas to the Kootenai River. LA contamination was generally limited to eight (8) Creek bank sections south of Balsam Street.

Granite Creek, tributary to Libby Creek in the town of Libby, runs along the west side of Highway 2. Granite Creek is located approximately 1.25 miles east of Flower Creek. The 1,365 foot Granite Creek Levee, along the west creek bank, protects adjacent residential and public parcels, including ten (10) residential structures and Highway 2. The levee, constructed with earthen material, was armored against creek flow with LA-contaminated riprap.

Callahan Creek, centrally located in Troy, discharges runoff from local forested and rural areas to the Kootenai River. The 1, 450 foot (900 feet upstream and 550 feet downstream of Highway 2) Callahan Creek levee is located along the left bank of Callahan Creek. The levee, constructed with earthen material, was armored against creek flow with LA-contaminated riprap.

2. Description of Threat

LA fibers are hazardous to humans, as evidenced by the high incidence of asbestos-related disease in area residents and workers who, over time, have experienced repeated exposure to LA. Lincoln County residences have experienced increased mortality and morbidity from asbestos-related exposure, including asbestosis, pleural fibrosis, lung cancer, and mesothelioma.

The creeks in Libby and Troy see an abundance of recreational use. As neither Libby nor Troy has a municipal swimming pool, the creeks tend to be popular swimming locations during summer months. Typically, children use the riprap along the bottom and banks of the creeks to construct small temporary dams. These dams create "swimming holes" for various water sports. Some of these dams are located in areas observed to have the LA-bearing riprap. In July 2007, EPA's Environmental Response Team conducted an Activity-Based Sampling Investigation along Flower Creek. That investigation found that breathing-zone LA concentrations reached 3.8 f/cc (fiber per cubic centimeter) during construction and use of these "typical" "swimming hole" dams.

C. Removal Site Investigation Results

Initial field inspection conducted by EPA contractors in July and August 2007 found LA-bearing rocks in three of five creeks: Flower Creek (Libby), Granite Creek (Libby), and

Callahan Creek (Troy). Rocks of nearly pure LA, as well as rocks that contain intrusive LA veins, were found incorporated into the riprap.

- Granite Creek: LA-bearing materials were found along the 1,365 foot stretch of the creek west bank levee, just upstream of the U.S. Highway 2 Bridge.
- Callahan Creek: LA-bearing materials were found along the 1,450 foot (900 feet upstream and 550 feet downstream of Highway 2) creek levee.
- Flower Creek: (The investigation was limited to a 2.5 mile section of the creek adjacent to residential and commercial properties.) LA bearing materials were widely distributed along creek, starting at the point where Flower Creek enters the populated area, to the middle of Libby, on creek banks south of the Balsam Street bridge.

II. RESPONSE INFORMATION

A. Contamination:

Rocks of nearly pure LA as well as rocks that contain intrusive LA veins were found incorporated into the above-mentioned riprap materials used for creek bank stabilization. Subsequently, Biological Assessments for the various creek segments were developed:

- Biological Evaluation for Flower Creek (USEPA – August 2008)
- Biological Evaluation for Granite Creek (USACE – March 2008)
- Biological Evaluation for Callahan Creek (USACE – March 2008)

B. Removal Actions:

- Granite Creek: Removal and replacement of most LA-contaminated riprap. The remaining LA-contaminated riprap was encapsulated with 3 inches of shotcrete, and then over-laid with approximately 30 inches of additional Class III, IV and V riprap from the toe to the top of the creek bank.

- Flower Creek: Removal and replacement of the existing LA-contaminated riprap.

- Callahan Creek: Same as that used along affected Granite Creek segment(s).

In general, removal and restoration activities for the referenced creek segments were completed between August 15, 2008 and June 20, 2009. All Removal activities were completed in accordance with the Addendum to the Response Action Work Plan (RAWP Addendum) developed for each creek. In total, 3,500 cubic yards of contaminated soil and riprap material was excavated.

Clearance soil samples were collected from each 'excavation' area before stream bank restoration began. Analytical results (PLM 9002 Method) for soil samples collected at depth ranged from non-detect to <1% of LA. Also, analysis of pre-, trans-, and post-

Removal perimeter air samples, routinely collected during field activities, detected no LA structures at those sampling locations.

1. Granite Creek:

Prior to beginning Removal design, the U.S. Army Corps of Engineers (USACE) had identified the need for levee rehabilitation along a stretch of Granite Creek, south of the U.S. Highway 2 (HWY 2) bridge, in an area with LA-contaminated riprap. Accordingly, Removal actions along Granite Creek were coordinated with USACE so as to ensure the levee restoration was according to USACE-specifications.

Removal along Granite Creek consisted of excavating and replacing soil along the access road and riprap adjacent to the HWY 2 bridge. The remainder of the contaminated riprap was encapsulated with 3-inches of shotcrete and subsequently capped with approximately 30 inches of additional Class III/IV/V riprap materials. Activities were completed as follows:

Activity	Dates
Containment Setup	8-15-08 through 8-22-08
Excavation	9-2-08 through 10-31-08
Restoration	9-4-08 through 11-19-08

(Total days at property (including weekends) - 97)

All work was completed on creek bank areas adjacent to 'privately property' at 2850 HWY 2 South.

Deviations to the original Removal work plan were:

- The access road and staging area were covered with an approximate 6-inch layer of structural fill during the Removal. Following the completion of creek remediation activities, these areas were excavated to a depth of 12-inches below original ground surface (BGS), then restored to the original grade with 'clean' fill.
- Prior to initiating the Removal, at the request of Lincoln County, EPA installed a water line adjacent to the HWY2 bridge so as to support any fire suppression activities in the area.
- Levee rehabilitation work was completed in accordance with Project Information Report, Rehabilitation of Flood Control Works Seattle District, Granite Creek – KOO-02-2007 (USACE 2007).
- Riprap delivered and placed on 9-23-08 did not meet Class III specifications. Accordingly, the 'new' riprap was replaced and the various contractors notified of the issue. Thereafter, riprap deliveries were adjusted to meet the correct specifications.
- Contaminated riprap and soils were removed to the Lincoln County Landfill and/or the Zonolite Mine, just outside Libby. At the requests of local and state officials, material excavated in a section of creek bank immediately south of the

HWY 2 bridge was restored so as to accommodate future road/bridge maintenance activities.

2. Flower Creek:

Contamination along Flower Creek was limited to bank sections south of the Balsam Street bridge. Contaminated riprap and soils were removed to the Lincoln County Landfill and/or the Zonolite Mine, just outside Libby, and replaced with similar, uncontaminated material. Activities were completed as follows:

Activity	Dates
Containment Setup	8-20-08 through 11-11-08
Removal (Excavation)	8-21-08 through 11-17-08
Restoration	8-22-08 through 11-25-08

(Total days at property (including weekends) - 98)

All work was completed along creek bank segments adjacent to the following private properties:

505 West Balsam Street
511 West Balsam Street
367 Cedar Street Extension
384 Flower Creek Road
583 Flower Creek Road
685 Flower Creek Road
719 Flower Creek Road
791 Flower Creek Road

Deviations to the original Removal work plan were:

- Additional work was required along a section of Flower Creek because of steep, loose bank material (i.e., soil, rock, etc.). Accordingly, several trees and an overhanging portion of bank above Area J, as detailed in Amendment 1 – Flower Creek Response Action Work Plan Addendum, Area J (CDM, 2008a), were removed. During this portion of the work, Flower Creek was temporarily diverted by the installation of a dam, pump, and gravity-fed discharge pipe. (Creek-diversion actions were coordinated with Montana Fish Wildlife and Parks (MTFWP) and U. S. Fish and Wildlife Service. Representatives from MTFWP were onsite during the initial diversion to observe, capture, and transfer affected fish (11-11-08))
- EPA approved Area J backfill and restoration prior to receiving clearance sample results.
- During the Removal, additional contamination, found adjacent to Area D, was identified and removed, and the original grade restored.
- During the Removal, additional contamination, found adjacent to Area A, adjacent to 511 West Balsam Street, was identified and removed, and the

original grade restored.

- During the Removal, additional contamination, found adjacent to Area G, was identified and removed, and the original grade restored.
- Area C was restored to a slightly different grade than that existing before the Removal so as to create a constant bank slope along the restoration area.

3. Callahan Creek

As with Granite Creek in Libby, this creek section has a USACE designed and installed levee. Accordingly, this Removal action was closely coordinated with USACE.

This Removal consisted of encapsulating contaminated riprap and soil along the west creek bank. Additional areas were encapsulated with 3 inches of shotcrete and capped with approximately 30 inches of additional Class III/IV/V riprap materials.

Activities were completed as follows:

Activity	Dates
Containment Setup	8-25-08 through 11-11-08
Removal (Excavation)	9-29-08 through 11-13-08
Restoration	10-6-08 through 11-20-08

Total days at property (including weekends) 88

All work was completed on city/county easements.

Deviations to the original Removal work plan were:

- Contaminated riprap and soil were removed, properly disposed of, and replaced in a section of creek bank immediately south of the HWY 2 bridge.. At the requests of local and state officials, material excavated in a section of creek bank immediately south of the bridge was restored so as to accommodate future road/bridge maintenance activities.
- During remediation activities, additional contamination was identified downstream of the HWY 2 bridge, along the west bank. The contaminated material was removed and the area restored with similar sized riprap.
- In an isolated event, overspray from decontamination equipment was not properly contained. Soil samples were collected from the area affected by overspray. Analysis of the samples showed non-detect (ND) for LA.
- Perimeter air samples were not collected during remediation activities along Callahan Creek.

D. Key Issues

None at this time.

III. COST INFORMATION

The approved budget for this Removal was $2,520,000, excluding Indirect Costs:

- **IAG DW96953768-019 (USACE)** **Riprap Materials**

Fund Authorized:	$520,030.27
Project Cost To Date:	$519,251.21
Balance (06/01/2009):	$242.38

- **EP-W-07-052, TO# 21 (Environmental Restorations, LLC) Removal Activities**

Fund Authorized:	$2,000,000.00
Project Cost To Date:	$1,613,998.11
Balance (03/24/2009):	$386,001.89

IV. DISPOSITION OF WASTES

A total of 3,500 CY of contaminated soil and riprap material, excavated from approximately 1.47 acres of creek bank, was disposed at the Lincoln County Landfill and the Zonolite Mine near Libby, MT:

- 570 CY of contaminated soil and riprap were removed from the west bank of Granite Creek.
- 2,600 CY of contaminated soil and riprap was removed from both banks of Flower Creek.
- 330 CY of contaminated soil and riprap was removed from the west bank of Callahan Creek.